

## CENTRAL INTELLIGENCE AGENCY

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## REPORT

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50X1-HUM

50X1-HUM

**SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.**

1. only grade-I or grade-II "contact ore" was sent to the ore storage bunker at Friesen. The ore storage plant at Friesen was already in operation, but the plant had not yet reached its full capacity. Dump trucks loaded with ore were still sent for processing to Lengenfeld. in early October 1954, 25 to 30 railroad carloads of ore left the installation daily in the direction of Lengenfeld. Ore arrived at the storage plant on dump cars. These cars were directed through an ore-testing station. The ore was subsequently dropped on a conveyor belt which took it to the ore storage shed, which measured 25 x 5 x 15 meters, through which a spur track passed. The ore was discharged through 20 openings into railroad cars parked below the shed. It was known that the Friesen ore storage plant received ore from Bergen and Zobes.
2. In early October 1954, 350 men were employed at Bergen. In September, 1,500 boxes of grade-III ore, about 120 tons of grade-II ore, and 700 tons of grade-I ore were mined. This was a 33 percent increase over the August output. It was believed that the output of ore could continue at this high level for about three months and that it would then decrease.
3. In September, approximately 12,000 to 15,000 boxes of grade-III ore, 3,000 tons of grade-II ore, and 15,000 tons of grade-I ore were mined in the Zobes area. It was believed that the output of ore would continue at the same level in October. A new mine, Mine No. 362, was opened as a central mine between Bergen and Zobes in the vicinity of Zschokau. Work on the sinking of the new shaft was started in May 1954. In October 1954, the shaft had been sunk to a depth of 250 meters. The geological structure of the rocks found in the new mine was similar to that occurring in the other four mines of the Zobes area. The new mine was, however, richer in uranium ore. Rich pitchblende deposits were expected to be found in the lower layers. The new mine ultimately was to have a labor force of 3,000 to 4,000 men. The labor force of the other four mines in the Zobes area was also to be increased.

50X1-HUM

**SECRET**

50X1-HUM

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(Note: Washington distribution indicated by "X"; Field distribution by "#".)

50X1-HUM

## INFORMATION REPORT INFORMATION REPORT

SECRET

50X1-HUM

- 2 -

It was stated that the total labor force of all the mines in the Zobes area was to be increased from 5,000 to 10,000 men.

4. When Mine No. 362 is completed, it is to be detached administratively from the Zobes mine group. Mining activities at Mine 362 had not yet begun. Personnel employed on the sinking of shafts in this mine were transferred from Mines No. 277, 294, 320, and 352.
5. Combine 277, Zobes, consisted of four mines which were in operation. On the average, the mines had reached depths of from 350 to 500 meters. Each of the four mines had a wooden elevator tower with two-story elevator cages, each of which could carry 6 men.
6. The hardness of the rocks in the Zobes area varied from category 6 to category 10. Gray slate, black slate, gray and white granite, graphite, and various kinds of basalts were found.
7. The mines in the Zobes area were rich in ore, and the quality of the ore was unusually good. Ore lodes were up to 120 cm. thick. So-called "compact ore" had only been found at section (Gesenk) 62/1, at an intermediate level between the fourth and fifth levels. It was believed that this type of ore would also be found on the fifth level. During the reported period, the daily output of ore amounted to 500 to 600 boxes, including 100 boxes of grade-I ore, 400 boxes of grade-II ore, and minor quantities of grade-III ore. From 20 to 30 boxes of grade-0 ore were also obtained daily. Grade-0 ore is pure compact ore. A bonus from 50 to 100 eastmarks was paid for 1 box of such ore. The labor force was approximately 4,500 men.
8. Two types of explosives were in use in the Zobes area, namely a 90 percent gelatine-donarite and a 10 percent dynamite. The explosives were delivered by an explosives plant on the Elbe River. The ore mined in the Zobes area was trucked to the ore-washing plant at Lengenfeld in the Vogtland.
9. In the second half of September 1954, the following quantities of uranium ore were produced by the six mines of Object 6:

Zobes:

	IV (compact ore) boxes	III boxes	Grade II mine carloads	I mine carloads
<hr/> Mine 277 (new mine): from 14 to 27 September 1954				
Level I	67	183	141	312
Level II	44	121	216	97
<hr/> Mine 362: from 20 to 30 September 1954				
Level I	217	81	179	63
Level II	162	34	86	-
<hr/> Mine 294: from 14 to 27 September 1954				
Level I	114	76	127	312
Level II	61	41	84	210
Level III	43	13	24	183
Level IV	19	47	56	167

SECRET

50X1-HUM

SECRET

50X1-HUM

- 3 -

	IV (compact ore) boxes	III boxes	Grade II mine carloads	I mine carloads
Level V	86	13	98	344
Level VI	149	-	34	78
<hr/>				
Mine 320: from 15 to 30 September 1954				
Level I	76	27	69	184
Level II	41	58	67	216
Level III	217	71	191	428
Level IV	48	-	41	113
Level V	-	-	-	73

Bergen:

Mine 254: from 15 to 30 September 1954

Level I	64	78	21	113
Level II	-	14	-	91
Level III	17	34	81	204
Level IV	60	27	-	97
Level V	-	-	87	123

Schneckenstein:

May Mine: from 20 to 30 September 1954

Level I	-	64	147	396
Level II	71	177	-	122
Level III	-	-	-	184
Level IV	-	-	136	94

10. The ore testing device which source knew and which was called "Ionisations-geraet PR 2" consisted of three main components:

- a. The case which housed the receiver, the amplifier, measuring devices, operating knobs and a set of batteries.
- b. The counting tube with protective casing and lead-in cable.
- c. A water-proof headset with a rubber ear piece, lead-in cable with power-supply plug.

The instruments in the PR 2 ore-testing device were arranged as follows:

SECRET

50X1-HUM

SECRET

50X1-HUM

- 4 -

In the upper left corner there was the instrument through which the filament current and the anode current were adjusted. The instrument was fitted with two measuring scales. The upper scale had readings for 0 to 100 volts, the lower scale from 0 to 3 volts. The anode voltage was set by a red push button. In the upper middle was the instrument which indicated the degree of radio activity. It had a measuring range from 0 to 50 micro-ampere. The connection for the counting tube was in the upper right corner. In the lower left corner, there was the switch for switching the set on and off. The switch which was designed as a knob was also used for the regulation of the filament voltage. A potentiometer fitted in the middle was used for the adjustment of the anode voltage. In the lower right corner there was a four-stage switch, which was directly connected to the scale showing the radio activity of the ore tested. The connection for the ear-set was above this switch. The filament and anode batteries were dry-cell units. The PR 2 set used Soviet type K or D tubes. Two tubes were available.

11. After the PR 2 sets had been switched on, the filament voltage was adjusted to 1.8 volt. Subsequently, the anode voltage was set at 50 to 55 volt. The step switch had to be set at position 1. Thereupon, the scale indicator showing the degree of radio activity had to vibrate between 8 and 12 micro-ampere. If the indicator did not remain within this interval, the anode voltage was either too high or too low. The earphone had to transmit four or five impulses per second. After these preparations, the ore tester (geophysicist) took the counting tube and put it on the rock to be tested. If the impulses previously heard in the earphone changed into a continuous noise, this was an indication that uranium ore was present. The step switch is to be adjusted in accordance with the deflection with the scale.

12. The ore tested was classified as follows:

Grade 1, 20 to 50 micro-ampere - quality 4  
 Grade 2, 30 to 40 micro-ampere - quality 3  
 Grade 3, 30 to 50 micro-ampere - quality 2  
 Grade 4, upward of 20 micro-ampere - quality 1  
 Quality 4 ore was not packed in boxes.<sup>1</sup>

13. The following detailed information was available on the technical data of the PR 2 set:

The instrument which adjusted the filament and anode current was a moving coil device with 500 ohm per volt. It had a diameter of about 30 mm and was manufactured by VEB Elektro-Apparate-Werke "J.W. Stalin" (EAW), Berlin-Treptow. The instrument used for the testing of the radio activity was a moving coil device with 1,000 ohm per volt. It had a diameter of about 75 mm and was also manufactured at EAW, Berlin-Treptow. Potentiometer 1 consisted of a wire resistance of about 40 ohm, fitted with a switch. Potentiometer 2 had 1 meg-ohm and was a logarithmic carbon-layer potentiometer. The step switch consisted of four stages. The potentiometers and the step switch were manufactured at VEB Werk fuer Bauelemente Nachrichtentechnik "Carl von Ossietzky" (Dralowid), Teltow, and at VEB Werk fuer Fernmeldewesen Berlin-Oberschoeneweide. The batteries used for the set were manufactured at the IKA Plant in Berlin (sic). The tubes were probably made at VEB Funkwerk Erfurt. The headsets had a resistance of 2,000 ohm. The set which was about 280 mm long, 150 mm wide and 180 mm high and weighed about 10 kg was assembled at the Erich Graetz Radio Engineering Plant in Berlin-Treptow<sup>2</sup> and at VEB Stern-Radio Sonneberg, Saxony.

14. Other ore-testing sets used in the Zobes area in addition to the PR 2 set included the portable PR 5 set which had battery connection, the stationary model RKS PR 8 set designed for mains connection, and a small Soviet set. All these sets worked on the principle of the Geiger counter, but were much more sensitive.
15. The PR 5 set (Profiliergeraet PR 5) is fitted with four operating knobs. The step switch has six stages. The counting tube has the shape of a

SECRET

50X1-HUM

SECRET

50X1-HUM

- 5 -

capital T. This type counting tube offers the advantage that large areas can be tested with it, while the counting tube of the PR 2 type was mainly designed for the testing of bore holes. The PR 5 set is carried on the breast and is housed in a wooden case. All the component units of the PR 5 set consisted of Soviet material. The sets were probably assembled in the USSR. The size and weight of the set were approximately the same as that of the PR 2 set.

16. The stationary model RKS PR 8 device consisted of 5 main component parts, namely
- The power supply unit with switch, fuse, control lamp, transformer and two model AZ 12 rectifier tubes.
  - The receiver which houses all tubes, the amplifier, the measuring instruments and switching equipment. The receiver was fitted with 8 Soviet tubes which emitted a blue light while in operation. The measuring instruments were manufactured at the Elektro-Apparate Werke in Berlin-Treptow. The switches and potentiometers at the Dralowid plant.
  - Two boxes of aluminum sheet, about 100 cm long, 10 cm wide and 60 cm high, weighing about 4 kg. Each of the boxes housed four counting tubes which could be switched on separately. The tubes were about 50 cm long and had a diameter of about 20 mm.
  - One pair of earphones with a resistance of 2,000 ohm.

The set was used for ore-testing purposes above-ground. It was mainly used for testing sterile rock hauled to the surface. The RKS PR 8 set measured about 40 x 24 x 30 cm and was housed in a box of sheet metal 1 mm thick. The weight of the set was about 20 kg.

17. The measuring instruments of the RKS PR 8 set had a scale gradation from 0 to 100. It was designed for four grades. The differentiation was as follows:

Grade 1 from 0 to 20 scale divisions - "Masse"  
 Grade 1 from 20 to 40 scale divisions - quality 4  
 Grade 1 from 41 to 80 scale divisions - quality 3  
 Grade 1 from 81 to 100 scale divisions - quality 2  
 Grade 2 upward of 100 scale divisions - quality 1

These categories were used for the testing of ore in mine cars.

18. The Soviet type miniature ore-testing device was fitted with miniature tubes and was operated by batteries such as are used for hearing aids. This device was not fitted with measuring instruments and did not utilize a headset. The miniature set was used in conjunction with an earpiece. The quality of the ore was determined from the volume of the noise heard. The counting tube used with the set had the shape of a tripod which could be extended to a length of 1 meter. When retracted, the tripod had a length of about 13 cm. The casting of the miniature set consisted of sheet aluminum and measured about 15 x 9 x 4 cm. The set weighed about 1 kg.

1. Comment. The designations of contact ore-2, contact ore-3, etc. which are frequently used by the sources probably refer to the differentiations called grade 1, grade 2, grade 3, and grade 4 ore mentioned in this report. It appears that sources frequently confuse the terms "Stufe" (grade) and "Sorte" (quality). For instance, grade 1 - quality 4 ore.

50X1-HUM

2. Comment: Not further identified

50X1-HUM

SECRET

50X1-HUM

50X1-HUM

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